

5 per cent, compared with the standard aggregate price during 1845-50. The total standard Index Number of Mr. Sauerbeck is  $45 \times 100 = 4500$ . The grand sum of the several Index Numbers for the year 1907 (the latest available) was 3588, and the relative proportion ( $3588 : 4500 :: x : 100$ ) gives the total Index Number for that year .of 80, exhibiting, accordingly, a fall of average aggregate price of 20 per cent compared with the general price existing during the period of 1867-77. The same results are, of course, produced by dividing the sum of the Index Numbers by the number of articles respectively: - 2-1— and

$\frac{3,588}{45}$

The standard prices employed by the *Economist* are the average prices prevailing during the period of 1845-50, while those of Mr. Sauerbeck consist, as has already been stated, of the average prices current for 1867-77; and in each scheme the processes are, of course, identical for ascertaining the change of price of a single article, or of a group of articles of similar or different kinds, or of the entire collection as a body.

Table III, it may be added, does not afford a completely correct measure of the general variations in price, since the fact, for example, that Tea has fallen in value does not possess an equal significance, in the importance of national use, with a rise in the price of Coal. To the *individual* consumer, however, a slight decline in the cost of Tea assumes a larger consequence than an equal advance in the price of Coal. The aggregate use and consumption of the country will vary in respect of the several commodities, and this obviously will affect the comparative importance of the combined changes of value in the market. If we could ascertain from statistical inquiry (and this could approximately be gathered from the differences of quantities) that the ratios of consumption of Cotton, Tea and Coal were respectively 2, 4 and 1, we might form Table IV as a mode of closer estimation. [This modification (from actual facts) of the constituents of a compound, so that the truth which the compound really represents may be

revealed, is imperative in science or quantitative knowledge. In a scale of physical pains, a transient headache would not be assigned the same value as a prolonged fit of gout.]